REMARKS

Claims 5-7 and 9 are pending in this application. Reconsideration of the rejections in view of these amendments and the following remarks is respectfully requested.

Claims 5-7 and 9 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

Claim 5 is amended, and is believed to overcome the rejection.

The phrase of the ultraviolet-curable composition is based on the original claim at filing. After the amendment filed on December 2, 2002, claim 5 recites the phrase of "wherein the pH value of a 1 wt% methanol solution of the ultraviolet-curable composition is within the range of 4.5 to 6.8."

According to the claimed invention, the applicant found that it is important to control an acidity or basicity of monomers, oligomers and photopolymerization initiator of an ultraviolet curable composition. If the pH value, based on measurement in a 1wt% methanol solution, is within the range as defined in the present invention, the resultant optical recording medium having an Ag refractive layer has an improved durability, as shown Examples 1-4 and Comparative examples 1-2 in Table 1 (page 20).

The phrase, 'wherein the pH value of a 1 wt% methanol solution of the ultraviolet-curable solution is within the range of 4.5 to 6.8' in claim 5 includes the terms of "of the ultraviolet-curable solution," so claim 5 is believed to tie into the subject matter, the ultraviolet-curable composition.

The claimed invention is directed to an ultraviolet-curable composition for forming a cured protective film which contacts a reflective film of Ag or Ag alloy, and improving the durability of the reflective film, or the optical recording medium, e.g., holding a signal property before and after a loading of an environmental test, more concretely inhibiting increase of C1 errors (the specification of the present application, page 4, lines 11 to 17; page 2, lines 6 to 9; Examples and Comparative Examples).

In contrast, **Suzuki** is directed to an optical recording medium having a protective cured film obtained by adding to an UV curable resin, an organic filler and/or an inorganic filler, on a metal reflective layer of Au, Al, Pt, Ag, Ni, etc., the surface of the protective cured film being made able to be written on by, for example, writing implements, an ink-jet printer, etc. (**Suzuki**, column 1, lines 7 to 10; column 2,lines 32 to 48; column 3, line 66, to column 4, line 1).

Thus, the invention as now claimed aims at the pH value of a protective film composition which relates to deterioration of reflective film of Ag or Ag alloy, whereas **Suzuki** does not, nor does it disclose a concept of controlling the pH value of a composition for a protective film. – Org a/mercomp

Next, the claimed invention relates to a raw material composition for forming a protective layer of an optical recording medium comprising a substrate, a recording medium, a reflective layer and a protective layer. When the reflective layer is made of Ag, the present invention exhibits a remarkable effect of enhancing durability of the optical recording medium, (Examples 1 to 4, and Comparative Examples 1 to 8). Ag limit not clear

Claims 5-7 and 9 were rejected under 35 U.S.C 103(a) as being unpatentable over **Suzuki** et al. (U.S. 5,573,831).

The teaching in **Suzuki** et al. in column 6, lines 45-51, is that to improve solubility of the hydrophilic polymer, a solvent such as methanol may be used. As described in column 5, lines 41-51, ultraviolet-curable compositions are typically used without a solvent, but may contain a solvent to increase solubility of a monomer into a polymer. Therefore, the portion at column 6, lines 45-51, is not a teaching of "adjusting the monomer by varying the solvents they are dissolved in."

The claimed invention does not direct to add methanol into the ultraviolet-curable composition, but to adjust a pH value of a 1wt% methanol into the claimed range. According to the claimed invention, the ultraviolet-curable composition is adjusted to have a pH value in a 1wt% methanol, resulting in having a refractive layer of Ag or an Ag alloy with an improved durability. Suzuki et al. does not teach to control a pH value in a 1wt% methanol solution to improve durability.

The Office Action states "Suzuki discloses an optical recording medium comprising a substrate, recording layer, reflective layer and protective layer where the protective layer is formed of an ultraviolet curable resin (abstract and column 2, lines 31-37) where the reflective layer contains metals such as Ag (column 3,line 67, through column 4, line 1)".

However, **Suzuki** recites Au, Al, Pt, Ag, Ni, etc. (column 3, line 67 through column 4, line 1), and does not differentiate a preferable metal and non- preferable metal, whereas the present invention selects Ag as a material of the reflective layer to be protected by the protective layer of the

present invention, which has a preferable pH range for Ag. In contrast, the protective layer of the claimed invention exhibits no well-defined correlation between pH values and protective property for Al reflective layer (the specification of the present application, page 22, lines 11 to 18).

That is to say, the claimed invention is that when Ag or Ag alloy is used as a material for a reflective layer, it is important to control the range of pH value of the ultraviolet-curable composition (more concretely, pH value of an 1 wt% methanol solution of the composition) used for forming a protective film. This fact is apparent from Examples 1 to 4, wherein pH values of 1 wt% methanol solution of the compositions are 4.8 to 6.4, exhibit an effect of improving the durability of the optical recording medium, whereas Comparative Examines 1 and 2, wherein pH values of 1 wt% methanol solution of the compositions are 2.3 and 7.6, exhibit an inferior effect on the durability of the optical recording medium. In particular, the composition of Comparative Example 1, wherein the pH value is 2.3, exhibit a particularly inferior durability.

In contrast, conventional optical recording medium having a reflective layer of A1 do not show a special correlation between pH value and protective property.

As far as the declaration being insufficent, the remaining examples 1 and 3-5 in **Suzuki** use "SD-17 (a product of Dai Nippon Ink Chemicals, Co, Ltd)." SD-17 was shown in the declaration in connection with EP 1058250. The declaration shows that "SD-17" has a pH value of 3.8, which is outside of the claimed range of the present invention.

Next, the Office Action states "**Suzuki** discloses the composition comprising monomers or

oligomers (column 4, lines 15-17) where the monomers contain a carboxyl group (column 6, lines 43-44). Although Suzuki does not disclose films, per se, layers are analogous to films."

In addition, **Suzuki** uses the monomer having a carboxyl group as a means for solubilizing the hydrophilic polymer, and the content thereof in the resin composition based on the resin composition is 20 to 98 parts by weight (% by weight) (**Suzuki**, '831, column 6, lines 41-54). In contrast, in the present invention, monomers and oligomers having carboxyl groups are used in order to control pH of the composition, and the content of the carboxyl groups in the composition is 0.05 to 1 wt% (the specification of the present application, page 5, lines 14 to 18), which is far less than **Suzuki's** composition.

As is apparent from the above, the object of using the monomers and oligomers having carboxyl groups in **Suzuki** is "a solubilizing component of a hydrophilic polymer", whereas, the object of the monomers and oligomers having carboxyl groups in the present invention is "a pH controlling component of the ultraviolet-curable composition". Thus, the objects of both are completely different and the carboxyl group contents thereof are completely different.

Next, the Office Action states "**Suzuki** does not disclose the wt percent of the carboxyl group. It would have been obvious to one of ordinary skill in the art to optimize the components of the polymeric group(s) because **Suzuki** teaches adjusting the monomer by varying the solvents they are dissolved in (column 6, lines 45-51).", in paragraph 7, lines 7 to 11.

The Office Action states by combining the description of **Suzuki's** "To improve solubility

of the ... and chloroform." (column 6, lines 45 to 51) and optimization of the components of the polymeric group(s). Because **Suzuki's** description of column 6, lines 45 to 51, "To improve solubility of the hydrophilic polymer, a solvent may partially be used such as water; ... and chloroform.", means the following. **Suzuki's** resin layer comprises (1) a hydrophilic polymer, (2) a hydrophilic monomer, (3) a crosslinking monomer, and (4) a radical initiator (column 5, lines 53 to 56). The hydrophilic polymer is dissolved in a polar hydrophilic monomer for use (column 6, lines 6 and 7). Accordingly, the solubility of the polymer (1) to the monomer (2) is important. Consequently, Suzuki, column 6, lines 41 to 51, discloses a method of dissolving a polymer into a monomer. First, from the view point of the monomer, column 6, lines 41-45, discloses that the monomer having a highly polar group such as a hydroxyl group, a carboxyl group, and an amino group dissolves the hydrophilic polymer more than the monomer listed in column 6, lines 6 to 36. Next, column 6, lines 45 to 51, which is referred to by the Examiner, perceives a specific solvent as an optional component, and use of the solvent improves solubility of the hydrophilic polymer. The UV curable resin of **Suzuki** is used typically without a solvent (column 5, lines 40 to 46). However, in order to increase dissolving ability, it may contain a solvent such as water, an alcohols, or a halogen-based solvent. Thus, **Suzuki**, column 6, lines 45 to 51, does not disclose nor suggest "adjusting the monomer by varying the solvents they are dissolved in".

Thus, the composition of claim **5** of the present application is now shown or suggested in Suzuki, and therefore, it is inventive over Suzuki.

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Respectfully submitted,

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